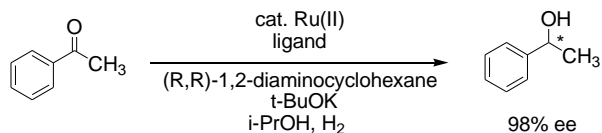


Catalog # 15-0730 (R)-(-)-4,12-Bis(di(3,5-xylyl)phosphino)-[2.2]-paracyclophane, min. 97%
 CTH-(R)-3,5-xylyl-PHANEPHOS

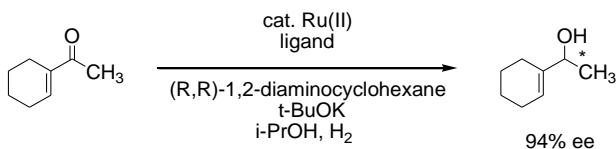
Note: Sold in collaboration with Johnson Matthey for research purposes only. US patent Application No 5874629 and patents arising therefrom.

Technical Notes:

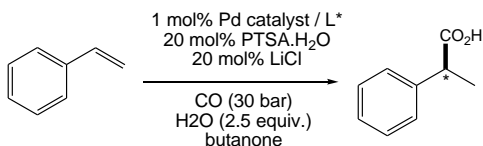
1. See [15-0426](#).
2. Chiral ligand employed in the enantioselective hydrogenation of various ketones.
3. Chiral ligand employed in the enantioselective hydroxycarbonylation and alkoxy carbonylation of alkenes.
4. Chiral ligand employed in the enantioselective [2+2] cycloaddition of oxabicyclic alkenes with terminal alkynes.
5. Chiral ligand employed in the gold-catalyzed enantioselective Cope rearrangement of achiral 1,5-dienes.



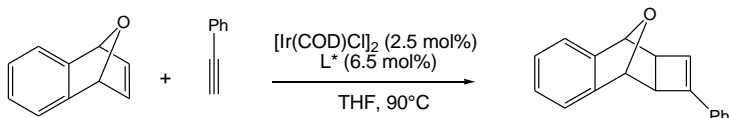
Tech. Note (2)
Ref. (1)



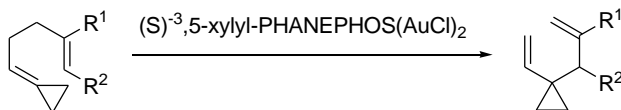
Tech. Note (2)
Ref. (1)



Tech. Note (3)
Ref. (2)



Tech. Note (4)
Ref. (3)



Tech. Note (5)
Ref. (4)

References:

1. *Org. Lett.*, **2000**, 2, 4173.
2. *Angew. Chem. Int. Ed.*, **2010**, 49, 9197.
3. *Org. Lett.*, **2010**, 12, 304.
4. *Nature Chemistry*, **2012**, 4, 405.